மதுரை ராஜ்

பனை 8964

ஸ்ரீ

144

List of Retainable papers for 18/5

Received Letters *Public Works Dept* Madura Collector's Office.

S. No. 8964

G. No 30094

Date.	Number.	From whom received.	Substance.
[illegible]	256 [illegible] No 152	Secretary to P. W. D.	Containing the opinion on points connected with the liability of a Public officer for his acts in the course of his service, by the Judges of the Sadr Adalut. The opinion is to the effect that for all acts of a Public officer in the course of his discharge of such duties, the Govt. if the instructs were in order, should, in the first instance, be requested to file an answer in the suit, and any thing contra, is invalid
[illegible]	2	Do	Instructions regarding the entry of estimates either ordinary or emergent etc
[illegible]		[illegible] to Govt.	Forwarding the copy of a proceeding of the Govt. sanctioning the alienation of tax on waste land to the amount of Rs 60, said waste land being used for the construction of a chu[illegible]

S.M. [illegible]
செப்பனிடுவதற்காக எடுத்துக்
கொள்ளப்பட்ட
[illegible] மாதம் வருடம் 1984
செப்பனிட்டு முடித்த
[illegible] மாதம் . வருடம் 1984
[illegible]
ஆராய்ச்சி உதவியாளரின்
கையொப்பம்.

List of Retainable papers for 1846

Received Letters. P. W. D Madura Collector's Office.

Date.	Number.	From whom received.	Substance
	9 forwarding Govt letter No 3[illegible]	Dy Secy to Govt	[illegible] of the [illegible] at Madura for the accommodation of native travellers.
[illegible]uary		Asst Civil Surveyor 8th Divn.	Communicating instructions respecting a piece of ground to be bought of the people, for building purposes, in the village of Cairapatty.
	12	Secy to the Board of Rev. P. W. D	Directing the principal Collector to enquire into the claims of Mr. Narain Samy Naik Son of Vempo Naik, late Dt Sheriff of Sho-lavandan, alleging to have been dispossessed of a garden situate on the Glacis of Madura and the N E gate, in course of improvement of [illegible] of Madura.
		Assistant Surveyor.	A Plan & Section of the Bridge of 24 ft span proposed to be erected over the Temporary [illegible] breached [illegible] by the freshes of the [illegible] [illegible]

List of Retainable papers for 1845.

Received Letters P. W. D Madura Collector's Office.

Date.	Number.	From whom received.	Substance.
27th Jan		Assistant Engineer	1 Sketch and Sections of the road and bridges proposed and the embankments washed away by the late freshes on 18th Jan. 1845.
Do		do	2 Plan Elevations and Sections of the Bridge proposed to be erected across a branch stream now made on the South by the late freshes of Coun [illegible] Velunthee Aur
20th March	158	Secretary to the Board of Rev. in the P. W. D.	Answers of the Board to the Collector for his explanations respecting his alleged illegality in his procedure in Connection with the Suits No 398 of 1842. Board cannot interfere since the Collector acted not as such but as Magistrate No. 222 of 1843 Collector's Conduct, is unauthorized & the Board cannot defend the Suit at the public expense No. 223 of 1843 [illegible]

List of Retainable papers for 1845.

Received Letters. P. W. D Madura Collector's O

Date.	Number.	From whom received.	Substance.
th April	211	Secy to the Board of Rev P. W. D	Narainsawmy is called upon to produce documents in support of his title to the garden, the subject of the alleged dispossession.
21st April	208	Secy to the Board of Rev P. W. D	It is not within the Cognizance of the Board, to enquire into the Conduct of a Collector in his Magisterial Capacity.
th June.	302	Do	A Circular to the Collector, containing instructions relating to the P. W. D.
th August		Mr Sim Lieu Col Chief	"General [illegible] on the ro[ads] in India" by Sim Engr Lt Col with four illustrative drawings.

List of Retainable papers for 1845.

Received Letters P. W. D   Madura Collector's Office.

Date.	Number.	From whom received.	Substance. 5
th ed		Captain A. Horsley Civil Engineer &c.	Correspondence relating to the turning of the perennial stream termed Lavoungal Aur, from the mountains of Travancore, at an estimated Cost of Rs 44,812.
8th Nov	250	Chief Secretary to Govt.	Sanctioning estimates for the Construction of a Chuttrum between Coolumputty and Vellakottai on the road between Srivillipputtur in Tinnevelly to Palghat by Palney, and for the Restoration of an old well in its ~~well~~ vicinity.

Recd 15th January 1845

Public Works — [illegible]

No 252

R

Extract from the Minutes of Consultation under date the 16th December 1844.

Read the following

No 178.

Extract from the Proceedings of the Sudr Udalut under date the 27th November 1844.

Read Extract from the Minutes of Consultation dated the 9th Instant No 216, requesting to be furnished with the construction of the Sudr Udalut on certain of the provisions of Regulation I of 1823.

1 The points submitted for the Courts consideration are;

First: Whether it is legally competent to a Public Officer, to file an answer in a suit instituted against him for Official Acts, without the prior reference to the Official Superior at the Presidency, prescribed by Clause Second Section II?

Secondly — Should an Answer be actually filed without such reference, is that answer insufficient

...ent ... invalid in law

...gue the ... ity. In that case, what course of proce-

... is open to the Government to remedy the ille-

...lity and Stay further proceedings in the Suit, till

...w Answer has been duly filed, or the cause disposed

of under Section IV.-

2. The Judges are of opinion that a

public Officer is not competent to file an Answer

in any Suit for acts connected with his Official

duties in which the interests of the Government

are involved, except under instructions from his

Official Superior or until a reasonable time has

been allowed by the Court for obtaining such instruc-

tions.-

3. In case of an Answer having

been filed without the requisite instructions having

been applied for or obtained a decree could not

be founded upon it, nor would the Government,

(a third party not duly represented in the case)

incur any responsibility thereby.

4. The power of a public Officer to

file

file an answer without reference to his Official Superior, is limited to suits, where the right and liability arising out of the action, are purely of a personal nature. where the interests of the Government would be brought into question by any proceeding before the Court, it would be the duty of the Court to see that the Government was duly represented and that instructions had been applied for and to wait a reasonable time for their receipt. — An answer filed in the case referred to without such preliminaries, would be insufficient and invalid and might be amended on the motion of the Sirkar Vakeel, if such should be thought necessary. —

Ordered that Extract from these proceedings be sent to the Secretary to Government in the Judicial Department for submission to the Most Noble the Governor in Council.

(True Extract)

(Signed) H. D. Philips
Register

Resolved

Para 1 Resolved that copy of the foregoing

Extract from the Proceedings of the Sudr Udalut

be forwarded to the Board of Revenue in the De-

partment of Public Works with reference to their

letter dated 23d September 1844 No 572.

The Most Noble the Governor

in Council considers it plain from this exposition

of the law that the Principal Collector of

Madura has acted illegally in putting in an-

swers to the suits against Acts connected with

his Official duties without previous reference

to the Board of Revenue. He resolves that that

law shall now be observed and that the Board

of Revenue in the Department of Public Works

be requested to instruct the Principal Collector

to move the Civil Court to be allowed to with-

draw and amend the answers he has filed, and

to request time to enable him to submit the

cases for the orders of Superior authority as pre-

scribed by Sections II and III Regulation I of 1823

(A true Extract)

(Signed) J. F. Thomas

Actg Chief Secretary

To the President and Members

of the Board of Revenue D.P.W.

No. 5

Ordered that the above be communicated to the Principal Collector of Madura and that he be requested to act in conformity with the instructions contained in the 3d para

Saml Best
Secy B. Rd of R. D. P. M.

Madras
6th January 1815
Despd 11th Do
No 2 15th J.B.

To
The Principal Collector
of Madura

Compd. G.J.

Recd 28th January 1845 [illegible]

13

Extract of a Letter from the Secretary to the Board of Revenue in the Department of Public Works to the Civil Engineer in the 3d Division

1 In reply to your letter of the 30th Ultimo the Board of Revenue direct me to state that the rule that new works are to be considered either Occasional or Emergent admits of no exceptions of any kind. Masonry works of a trifling or annual nature should be all estimated by the Civil Engineer's Department and the Estimates of Materials &c for masonry work are admissible only with the approval of the Civil Engineer.

2 Works sometimes need considerable repairs which [illegible] and maintenance to any are entered in the Ordinary Estimate, and as such repairs may amount even to the entire reconstruction of the work it is desirable to allow accordingly in such cases for Thorough Repairs.

3 Estimates for improvements only are not allowable in the Ordinary Account but if a work needs repairs, and in repairing it [illegible] at the same time improvement can be made it may then be entered in the Ordinary Estimate and executed according to the recommendation of the Engineer Department.

(Signed) [illegible] Bell

Secy. Bd. of Revenue P.W.

O. 2

1 Ordered to be communicated to Collectors and Civil Engineers for their information and guidance.

(Signed) [illegible]

Secy. Bd. of R. D. P.W.

Madras
[illegible] January 1845
[illegible]
28th [illegible]

The Principal Collector of [illegible]

Recd 18th January 1845 JD

Department of Public Works

16

No. 541

To

The Secretary to Government
Public Department

Sir

Para 1st I am directed by the Board of Revenue to request you will submit to the Most Noble the Governor in Council the accompanying letter and its enclosures received from the Principal Collector of Madura Soliciting Sanction for the alienation of tax on waste land of the value of 60 [illegible] Rupees per annum for the support of a [illegible] Chuttrum proposed to be built at Madura on the right bank of the Vigay river. Mr Blackburne also solicits permission to make over a piece of land measuring about 4¼ [illegible] for the site of the above building and 800 yards of fort stones and a reasonable quantity of the brick debris of the Fort for the construction of the [illegible]

foundations

foundations of the Chuttrum.-

...2d The contemplated building is to be erected by Ram Rao a Gomastah of the Huzzoor Establishment at an expense of 2000 Rupees.-

...3d The Board consider Mr. Blackburne's request worthy of favorable consideration and beg to recommend that his application be complied with.-

Madras } I have the honor to be &c
...5 September 1844. } (Signed) Saml. Best Captn.
Secy to the Bd of Rev in the P.W.

No. 207

To
The Officiating Secretary to the Govt. of India

Sir,

Para 1st I am directed by the Most Noble the Governor in Council to transmit copy of a letter from the Board of Revenue Department Public Works, giving cover to one from the Principal Collector of Madura soliciting Sanction for the alienation of the tax Pub. Wo dated No. 641

17

tax on certain waste lands of the value of
Rupees 60 per annum for the support of a
Chuttrum proposed to be built on the right
bank of the Vijay river in that District by
Ram Rat, a Gomastah on his Establish
ment, for the accomodation of Native Tra
vellers.

2d. His Lordship in Council be
ing of opinion that the proposition is deserv
ing of encouragement recommends it for
the favorable consideration of the Govern
ment of India.

3d. It is not the intention of this
Government to accede to the other requests
with which the proposal was accompanied.

...George }
...1844 } (Signed) J. F. Thomas
Secy to Govt

No 100

To

The Secretary to Government
Fort St George

Sir

...pt Rev Parat. I am directed to acknowledge
the receipt of your letter No 207 dated the
22d Ultimo with enclosure, and in reply to state

that

that under the recommendation of the Most Noble the Governor in Council, the Governor General in Council is pleased to Sanction the alienation of the tax on certain waste Lands of the value of Rupees 60 per annum for the support of a Chultrum proposed to be built on the right bank of the Vygay River in the Madura Collectorate by Ram Rao a Gumastah on the Principal Collector's Establishment for the accommodation of Native Travellers.—

2d. The original papers received with your letter are returned.—

Fort William } I have the honor to be &ca
the 23d Novr 1844 } (Signed) F. R. Davidson
Offg Secy to the Govt of India

No 1378

Ordered that the foregoing letter, and the one to which it is in reply be communicated for the information and guidance of the Board of Revenue in the Department of Public Works, with reference to their Secretary's letter dated 5 September 1844.

1844 No. 541.

19

Fort St. George
1st December 1844.
To the Bd. of Revd. D.P.W.
with copy of the letter referred to

(Signed) T. V. Stonhouse
Actg. Secy. to Govt.

(True Copies)

(Signed) T. V. Stonhouse
Actg. Secy. to Govt.

No. 9.

Ordered that copy of the foregoing Correspondence with transcript of the Boards letter to Government be communicated to the Principal Collector of Madras

Saml. Best
Secy. to the Bd. of Revd. in the D.P.W.

[Madr]as
[Janu]ary 1845
14th D.D.
18th J.B.

R

21

Lieut Col Ensley

Civil Engineer

[illegible] 5th Division

Sir

In acknowledging the receipt of [illegible] I beg to inform you that the ground in rear of the South line of the Aqueduct at C[illegible] [illegible] unfit for building purposes the ground is high and at present [illegible] under the [illegible] enclosed by the [illegible] being cultivated with Paddy.

In my Diary I remarked that no other ground is fit to build upon, except where was marked off as a [illegible] in the Ditch, this spot was pointed out to me by the Tasildar as I was ordered to behave according to the Principal Collector's orders, and I did not consider my opinion in any other [illegible] necessary; the portion of ground there [illegible] is deserving of giving up it being situated to the East of the Village between the Road and the Tank on the North side where it is a perfect swamp during wet weather.

I beg

I beg to remain

Sir,

Your most Obt Servant

(Signed) F. Kerr

Chief Civil Engineer 8th Divn

...ahore

January 1845

...d 16th ...

True Copy

W. H. Horsley Lieut

Civil Engineer 8th Divn

From the Chief Civil Engineer 8th Divn

Dated 31st January

1845

Department of Public Works

No. 72.

To

The Principal Collector
of Madura.

Sir,

With reference to Nos. 1110 and 1111 and subsequent petitions from Narrain Sawmy Naick, son of Vengoo Naick, late District Moonsiff of Sholavundan, complaining of his having been dispossessed of a garden situate near the Glacis of Madura and the North East gate newly opened, I am directed to state the Board's request that you will endeavour to satisfy the just claims of the Petitioner after due enquiry into his title to the ground in question, and they trust that should his right to it be proved, you will be enabled to arrange with him in such manner as may not impede materially the progress of improvement in the town, and may

yet

yet remove all grounds of further com-
-plaint on his part-

I have the honor to be

Sir

Your Most Obedient Servt.

Saml. [illegible]

Secy Bd. of Rev. [illegible]

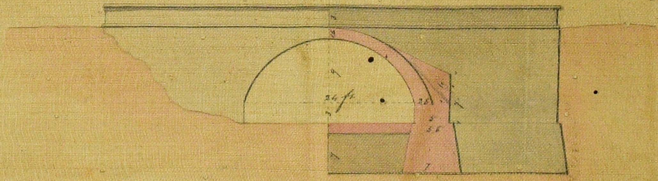
Madras
6th February 1853
Despd. 8th Do
Recd. 12th [illegible]

Compd. [illegible]

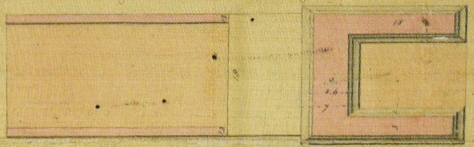
a.

Plan and Section of the Bridge of 24 feet Span proposed to be erected over the Temporary course now breached on the North by the late freshes of the Countulnuthee-aur (

Elevation & Section.



Plan.



Despatched 27th Jany 1845

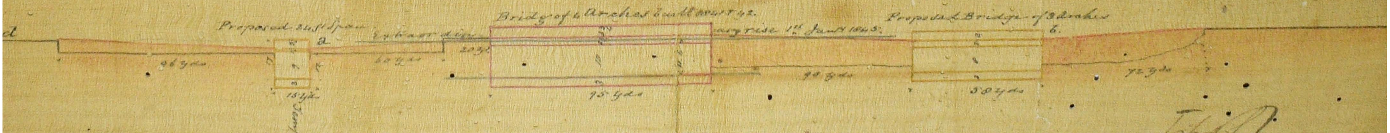
Received 27th

Asst. Surveyor
Madura Collectorate

29

31

Sketch and Sections of the Road and Bridges proposed and the Embankments washed away by the late freshes on January 1845.



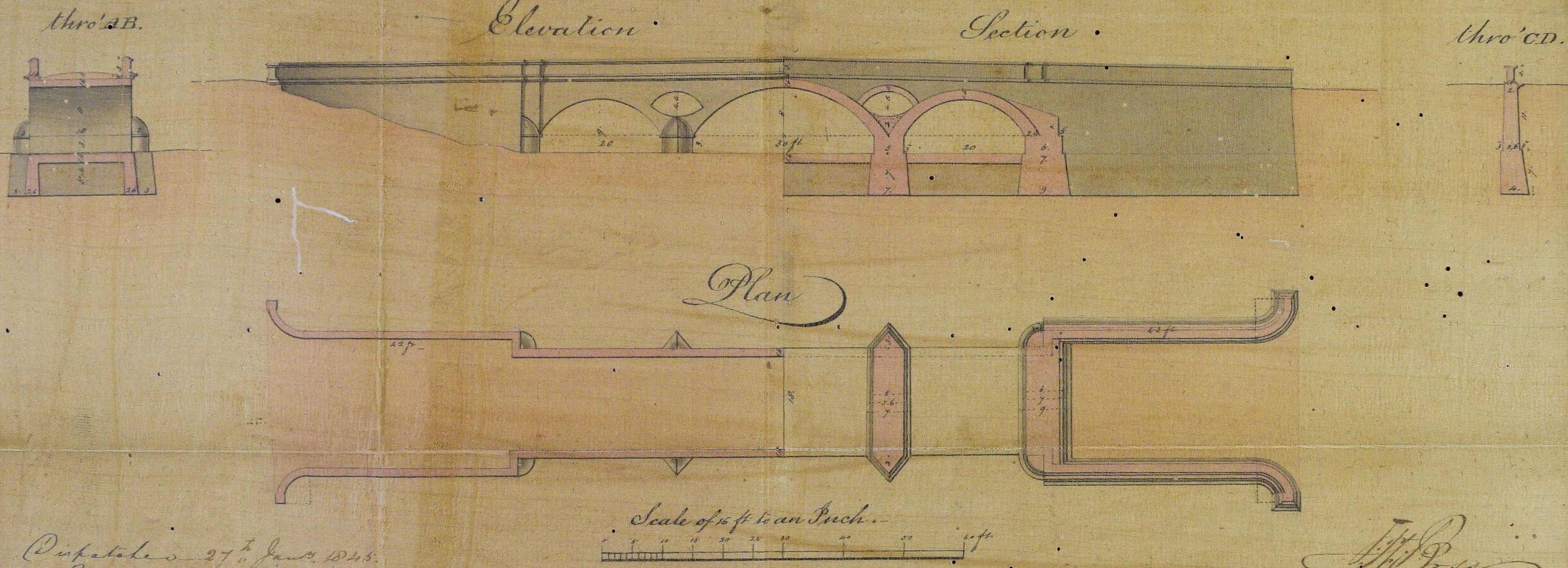
Despatched 27th Jany 1845.
Received 27th

Asst. Surveyor

6.

Plan Elevation and Sections of the Bridge

proposed to be erected across a branch stream now made on the south by the late freshes of the Countulnuthee Aur



Dispatched 27th Jany 1845.
Received 27

[illegible] Ross
Asst. Surveyor
Madura Collectorate

Received 31 March 1845 /D

No. 158.

Extract from the Proceedings of the Board of Revenue in the Department of Public Works under date the 20th March 1845.

Read the following letter

From the Principal Collector of Madura.

Requesting consideration of the [pro]priety of answers proposed in [my] letter of the 5th August in Suits [No.] 398 of 1842 and of No. 222 and [...] of 1843, sanction for maintain[ing] them at Government expense [an]d affording data to enable the Government to Judge how far I am to blame for the illegality they say I have been guilty of.

Here enter No. 112 L.R. dated 20th January 1845.

The Board proceed to record their opinion on the cases referred to in the foregoing letter.

Case No. 398 of 1842.

Mr. Blackburne states that in the circumstances which

which have given rise to the above suit, he did not act as Collector, but in the Capacity of Magistrate, and as the Board is not his Official Superior in that Capacity, they cannot interfere.

Case No 222 of 1843.

In this case the Plaintiff affirms that Mr Peter formerly Principal Collector of Madura under authority of Government dated 3d March 1820 granted to his (the Plaintiff's) father certain ground and a building - farther, that possession was confirmed by J. C. Wroughton Esqr Sub Collector in his Endorsement given on a petition on the 12th October 1831, that the Building was pulled down by the order of Mr Blackburne and the ground granted by him to others.

Mr Blackburne in reply states that the Government Sanction quoted extended to the granting permission for houses to be built on spots of ground on which Public quarters formerly erected had lately been pulled down, but that the records shew no Authority given to Mr Peter by which that Gentleman was entitled to give away public Edifices such as the

One

one in question.

and that, if Mr Peter had such Authority to grant the grounds and building to the Plaintiff and in the event of their title being so far good, the grant did not Authorize the Sale or Mortgage of the same but was restricted to the hereditary enjoyment of it.

The Principal Collector being satisfied that Plaintiffs had forfeited their right by Mortgage of the ground, granted it to others with the view of saving expense in the improvement of the Town.

The Board are of Opinion that the Principal Collector was not Authorized to deprive the parties of their property on the grounds mentioned, nor to give their land to others. and therefore

They do not recommend that this Suit should be defended at the public expense.

Case No. 223 of 1843.

This case is similar to the preceding, certain land is said to have been held under a title deed dated 30th July 1818 and granted by Mr Peter

Mr.

Mr Blackburne, finding the ground unoccu-
pied calls in question the title because the
general Sanction of Government under which
Mr Peter acted gave permission to build
houses on certain ground, but did not grant
the ground to be given away, sold or mortgaged.
The ground having been partly given away
and partly mortgaged, Mr Blackburne con-
sidering the title void assumed it as the pro-
perty of Government and granted it to others.
The Board do not think that Mr Black-
burne had authority in this case either to re-
sume or to grant and they do not recommend
the defence of the Suit at the public expense.

Ordered that copy of the above
Proceedings be communicated to the Prin-
cipal Collector of Madura.
(A true Extract)

Saml. Brest

Secy. to the Bd. of Revr. in the D.W.

Recd. 31 March 1845 JJ

Compd. JJ

Recd 29 April 1845 JB

Department of Public Works

No. 211

To

The Principal Collector
of Madura

Sir,

With reference to your letter of the 29th March, the Board of Revenue direct me to state that they have recommended Narayansawmy Naik to produce the documents alluded to, and they do not consider their further interference in the matter to be called for —

I have the honor to be
Sir,
Your Most Obedient Servant
Saml Beck
Secry to the Bd of Revd D.P.W.

Madras.
3d April 1845
Desd 25th do do
Recd 29th JB

Compd. [illegible]

Received 8th June 1845 [illegible]

Department of Public Works

No 208

D3

To

R

The Secretary to Government

Public Department

Sir,

1. The Board of Revenue direct me to return Petitions Nos 1669 & 1592 forwarded to them for Report, together with explanations furnished by the Principal Collector of Madura and Copy of a letter calling on him in reply to his letter of 20th December for the additional explanation contained in that dated 19th March

2. Mr Blackburne in this letter states that he considered the Laghadiri to be the property of Government and that its dangerous state justified his removal of it. The Petitioner objects to the removal of his house with which Mr Blackburne states that he has not in any way interfered - but he adds, "if milder and more patient means fail, I shall be happy in using the act in question against him". Mr Blackburne

attendes

alludes to Act XX of 1841 which gives powers in certain cases to the Magistrate.

3. As the Acts of the Magistrate do not come under the Cognizance of the Board they offer no opinion on this subject, but appre hend that there can be no objection to Mr Black burne's exercising the authority legally vested in him if necessary.

4. The case No 1592 has been already decided on by the Court of Sessions in favor of Mr Blackburne, who acted as Magistrate in this case also.

5. With regard to the English petition of Mooneyan Chitty which was refused on ac count of its not being admissible to Tamil records, the Board are of opinion that the circum stance of its being written in English should not have been considered sufficient reason to reject it altogether.

Madras
2d April 1845

I have the honor to be &c
(Signed) L. Best
Secy Bd R D Pr

Received the [illegible] June 1845 [illegible]

Department of Public Works

[illegible]

[illegible]

To

The Principal Collector

of Madura

Sir,

1 I am directed by the Board of Revenue under instructions received from Government, to request you will prepare and forward a list of all the tanks, Channels and Anicuts belonging to Government or under their management, the Annual revenue of each of which exceeds 500 Rupees

2 In cases where the revenue is derived from two or more combined works they will be considered as one, but where an Anicut contributes to the supply of more than one channel, where a channel that fills a tank supplies for the course direct irrigation and in other similar cases the necessary discrimination must be carefully made in the Statement, and it should be particularly observed that the same amount of revenue is not to be entered more than once, though it may depend upon several works.

3 The works should be described in general terms, those of European construction or that have been done on the recommendation of the Engineers being distinguished from such as are either ancient or of Native have been proposed and executed by the [illegible] [illegible] exclusively. Spring Channels should be distinguished from those of [illegible] from rivers and [illegible]. [illegible] [illegible] [illegible] [illegible] of [illegible] [illegible]

[illegible]

The [illegible] of [illegible] channels [illegible] during the year in [illegible] and [illegible] should be [illegible] with [illegible] of [illegible] the number of [illegible] or channels with the number of [illegible] of discharge or at the heads of branches [illegible] the head [illegible] of the main Channel. The branches of main Channels should also be enumerated, but no description of these is required, even though the amount of revenue from any one of them should exceed Rupees 300.

It will not be necessary in any case to enter [illegible] in the lists, and when, as it sometimes happens a tank contributes to [illegible] cultivation, it would be sufficient to enter its proper revenue only. If this is under Rupees 300 the work will be omitted altogether. The accompanying form of list will be strictly adhered to. In the column of remarks by the Collector it will be stated whether the proportion of the cost of repairs payable by others than the Government is easily obtained, and if not what difficulties exist in the way of the collection.

It is desirable that before the lists are copied for transmission to the Board they should be sent to the Civil Engineers for revision of the terms in which the works are described, as it can scarcely be expected that the local accounts will always be clearly intelligible. When the Engineer has personal knowledge of the work or has grounds for believing that it is incorrectly described, he will, if necessary, communicate with the local Officers on the subject, unless he is able to make a personal inspection within a reasonable period.

The columns referring to the state of the work and the cost of future repairs are to be filled up by the Civil Engineer or his Subordinates after actual

(47)

[illegible] inspection. For this purpose he will take copies of the rough plans [illegible]
[illegible] from the office and [illegible]
[illegible]
[illegible]
[illegible] The reports [illegible]
already received from the [illegible] should have a separate
sheet [illegible] before the [illegible]
rough [illegible] they will not think it necessary to [illegible]
may be [illegible] the [illegible] information required for their own reports.

8. It is particularly desired that the only terms not English to be used may be "Anicut" and "Calingulah" the former being applied exclusively to dams across rivers and streams and the latter to works for the discharge of superfluous water. Under tunnels for the passage of one channel beneath another must not be confounded with Sluices of discharge, both being at present commonly known by the name of Under Sluices, which to avoid confusion should be altogether discarded. The artificial banks of rivers and Channels should be termed "dykes" and of tanks simply "banks". "Groynes" may be called "jetties".

Madras
5th June 1845
Despd 11th do
Recd 16th [illegible]

I have the honor to be
Sir
Your most obedient Servant
J. H. Bell
Secy [illegible]

Roads in India.

General Observations.

In preparing and considering Plans for the improvement and extension of the Roads and communications of India, it is necessary to keep in mind the following circumstances.

Firstly. — India is a poor and thinly peopled country with comparatively little trade, its manufactures in a very depressed state, and its mineral and other sources of wealth imperfectly known and little developed.

Secondly. — Its best means of carriage is the common native carts, often of very rude construction, drawn by a pair of bullocks not capable of accomplishing more than from 15 to 25 miles a day, even on good roads and under the most favorable circumstances.

Thirdly. — During the monsoon months, travelling and the transport of goods are in a great measure suspended from the violence of the rains and the want of places of shelter at night and while halting for rest.

Fourthly. — The roads are crossed by numerous rivers of a large size which cannot be bridged except at an enormous expense.

It will at once be seen that in a country so circumstanced, it would be unwise at present to attempt the

the

the formation of extensive lines of mettaled roads, such as are common in England, for the resources of the country would be found unequal to complete them, or even to keep them in repair when completed. — Great celerity of transport is not practicable, nor is it of so much value as in Europe, or at least practicable roads are the first desideratum, and when that object is gained, then expedition may be thought of.

But though continued lines of mettaled roads with bridges over all the streams and rivers which cross them, be not attainable, still great and extensive benefit may be realized from gradually improving and extending the roads in a less perfect manner, by the removal of the principal obstructions which impede the traffic of the country, and by opening new roads and ghauts between large Towns, and fertile Districts. The principal obstacles are rocks and jungle in the rocky Districts, and swamps, ricefields and the black cotton soil in the valleys, plains and country near the sea coast. These obstacles it is clear must be removed to a certain extent before a road can be considered practicable for wheel carriages. In improving a line of road therefore, the stones must be removed from the rocky portions of it to a width of 18 or 20 feet, and the jungle cleared away so as to leave an open space of 20 or 30 feet on each side. The parts which cross swamps and ricefields are to be raised sufficiently to prevent their being overflowed the rainy

season,

season, their sides sloped and turfed, as a protection from the effects of the weather and their surfaces covered with sand, gravel, or broken stones. Roads through cotton ground do not generally require to be raised and may be much improved and made passable by a covering of from 6 to 10 inches of sand, gravel, or broken stones spread over the natural surface of the country. Whenever the natural soil consists of hard gravel or even sand, nothing is required beyond levelling and straightening the road, and constructing parallel and cross channels to drain it, and prevent its being cut up by the rains. When it is necessary to raise roads to prevent them from being flooded, they should be raised only just sufficient for that purpose; for every inch in excess is a positive defect, increasing the first outlay, as well as the difficulty and expense of afterwards keeping them in repair. This is a point which should be carefully attended to, for height is not so necessary to protect roads from injury and destruction during the monsoon, as abundant drains and channels to allow the water a free passage under them.

But whatever is done, should be done well and substantially, and means provided for the ordinary repairs which all roads in every part of the world, and especially in tropical countries, require; for the best formed roads if neglected for a short time, rapidly go to ruin and become impassable. Unless the requisite funds are allowed

for

for the maintenance of roads, it is wise to leave them alone, for money expended in forming them, if they are to be afterwards neglected, is only thrown away.

Large rivers cannot be bridged on account of the enormous expence, but good and easy ferries should be established, and precautions taken to prevent Travellers from being imposed on, or unnecessarily detained. At every ferry where a toll is established, the rates for foot passengers, cattle, and carts of every kind, should be clearly determined, and exhibited in a conspicuous place for the guidance of passengers.

Where the rivers and nullahs are deep, or have muddy beds, and are not very wide, they should always be bridged, for bridges where attainable, are infinitely preferable to the best ferries.

By adopting the above principles, and following a regular and systematic plan of proceeding, it is believed that extensive permanent good may be affected, without pressing too heavily on the resources of the country, and as trade and manufactures increase, as they cannot fail to do, under a just and enlightened Government, with the increasing facilities of transport to the Sea coast and to profitable markets, still greater improvements may be undertaken, and more bridges built, making the trade of the country, and the improvements of its roads keep pace together, and mutually support and promote each other. Something has already been accomplished, and the result has in every case proved

most

most encouraging, for the improvement of every road and the opening of every new pass has been followed by an immediate increase to the trade in the neighbourhood, and it is in vain to expect that either the trade or manufactures of this Presidency can prosper, till the means of transport to profitable markets are much facilitated.

The annexed detailed Rules will be found useful to those who are entrusted with the formation and repair of roads.—

Rules for Road Work, in the Madras Presidency.

In determining the direction of a new road, too great forethought cannot be exercised. The natural difficulties that intervene between the places which it is proposed to connect, and the advantage of overcoming obstacles compared with the expense of construction and repairs must be well considered. "It is essentially necessary in every case to survey all the various lines that appear favourable. These surveys should exhibit a true representation of the country with all its undulations of ground, streams, brooks, buildings and other conspicuous objects." Sections should be made of the nullahs, streams, and rivers on which the height of the greatest floods should be marked, besides which, the velocity of water, and the sectional area of the river should be stated.

As a general rule the best line of road will be that which

is the shortest, the most level and cheapest of execution, but hills, valleys and rivers frequently render it neces=
=sary to deviate from the direct course. Where old roads have been made at great cost, it would be unwise to abandon them and incur the labour of making new ones, in order merely to shorten the travelling distance; nor would a new road though short be readily fol=
=lowed if it were to pass through a country ill supplied with water and provisions, thinly inhabited & without the convenience of shelter in choultrums &c.a usual on long established routes.

The time occupied in travelling over a road depends not entirely upon the distance, but also on the nature of the road itself — sandy, swampy, or steep tracts and inconvenient fords or ferries, all add much to the time required, and it may be more desirable to avoid them than to make the road somewhat shorter.

In deciding whether it is better for a road to go over, or for it to go round a hill, the following points should be kept in view.

Carriages cannot be used advantageously on a road, any part of which descends more than one in ten, and a rise of one in six is inconvenient even for laden cattle. The draught which on a rise of one part in 600 is overcome by an exertion of 111 lbs, requires a force of 268 lbs when the slope is one in 20. But animals capable of a certain continued exertion, can for a short period apply a greater force without difficulty, and

it

it has been found that changes in the slopes of roads of a road, by varying the stress on their muscles at different times, afford relief and are more favourable to draught cattle when the inequalities are not too great, than a dead level.

The methods of forming roads to surmount steep hills will hereafter be considered separately. It may here be observed that in running a road on the side of a hill, a channel or catch drain should be cut along the inner side of the road and it should have a slope inwards. This slope should not exceed 1 in 20. Cross drains or paved watercourses must cross the road at intervals to carry off the water, drains are far preferable.

The same should be observed where roads pass below the banks of tanks or wherever the water cannot be got rid of except by carrying it to the other side of the road.

Rivers require very careful examination. In choosing whether they should be passed by ford, ferry or bridge, firstly the depth, and secondly the width must be taken into consideration. The height of the platform of ordinary carts of India is about 2 3/4 feet above the ground on which the wheels rest. Streams, which for more than 12 hours together remain above 3 feet deep must be bridged or have boats or rafts, or they will cause detention to traffic, as such carts could not ford them without risk of injury to the goods carried on them.

If the bed be naturally hard or sandy, no work is necessary to render it passable, provided the depth of

f water does not exceed the limit above mentioned.

In some cases the depth of water may be diminished and the river rendered fordable by means of a dam or tramway across it.

Such dams should be formed so as to guard against the water undermining them. They should be made of massive stones and have a good foundation.

To all streams and hollows, access should be rendered convenient by sloping the banks and such slopes ought not to rise more than one tenth of their length.

In muddy bottoms and banks; both bed and slopes should be paved, large blocks of stone should be used for the down stream edge, and smaller stones for the upper flat part of the pavement. Care must be taken that the stones are firmly laid, and they should be set on a bed of gravel, or shingle, well beaten, in order that the pavement may not sink or become uneven.

Pavements should extend at least for 2 yards on each side beyond the highest water mark.

It is desirable that the whole slope should be paved, and special care must be taken where pavements begin and terminate that the road adjoining them is firm and even, for if carriages are jolted, in passing from the paved surface to that of the ordinary road, the stones will soon be loosened and displaced. Stones used for pavements should be at

least

least from 1/2 to 1 1/2 yards long, and half a yard broad, and they should not only have a smooth upper surface, but should fit well together; so as to leave but little space between them from top to bottom, and that little should be filled up very carefully.

The hardest stones should be chosen, laterite particularly requiring selection; for in the same quarries the greatest difference is often observable, and the workmen if not looked after, will choose the softest because easiest to excavate. The edges of this stone are very easily broken off.

According to the rule above given, the length of the pavement across a nullah should allow, besides the width of the bed, 24 yards for the slope for banks of one yard high, and 10 yards additional for every half yard more height.

The width of pavements must be the same as that of the surface of road, Viz 6 to 8 yards.

Those which have been made with slopes steeper than above directed, have been so generally disapproved, have led to the condemnation of such pavements (sometimes styled Irish bridges,) but if properly made, where stone is abundant and brickwork dear, they will be found more economical than bridges. It will always be as well, however, to calculate for the purposes of comparison, the expense of a bridge over the same nullah

and

and affording equal water way, and bridges should be built across all small rivers and nullahs which are too deep for carts or have muddy bottoms, unless the cost be an insu-perable objection.

The considerations which would lead to the selection of a spot for a ferry, are such as refer to the breadth of the stream, the velocity of the current, freedom from rocks or sandbanks, and convenient approaches for landing and embarkation.

Bridges should in preference be built, where streams are narrow and deep, but in India where there are so many rivers of too great size for bridging to be advisable, on account of the great expense, roads must often be directed by the position of fords, which are not always the best positions for bridges. The probability however of bridges being built at some future period to super-sede the use of fords must not be lost sight in selecting lines of roads.

The cost of an efficient ferry including the repairs and construction of boats &c may be, from 150 Rupees to 400 Rupees per annum. To avoid the annual expense, and obtain more convenient and rapid transit, it will often be worth while to pay 20 years purchase for a bridge.

Roads on Hard Soil and Avenues.

Roads on hard gravelly soil require comparatively little attention

attention, more particularly if they are on level country. The removal of stones, bushes and rocks, the clearing to 50 yards on each side of jungle in which wild beasts or thieves might harbour, and the construction of drains, pave-ments and bridges do not require particular or further notice. Side channels may often be dispensed with, unless the road slopes more than 1 in 100. If the road wears into ruts and would become lower than the ground on each side, these hollows ought to be from time to time filled up, but the natural drainage of the country should never be interfered with unnecessarily.

Avenues of trees generally thrive best on ground of this description and they are a great convenience to Travellers, affording them shade and shelter from the scorching rays of the sun. They should not however be planted close to the sides of the road, as their roots are then apt to injure it, but at a distance of from 10 to 20 feet from its sides.

Hedges of prickly euphorbium, or of aloes may be used to mark out roads, and a tope or grove here and there is ornamental, and very useful to Travellers and should be planted at every four or five miles distance.

The best plan for planting trees, seedlings, or cuttings appears to be to put them in after the soil has become dry, and to water them till the rains fall. Cuttings should be watered for upwards of three years.

If

If procurable with difficulty, mangoes, tamarind, jack and other fruit trees that afford both fruit & shade are preferable. They are generally of slow growth however, and other trees should be planted alternately with them. Of the trees more common in this Presidency, there are three kinds of banyans, of which that having a smooth stem and small pointed leaf is the most hardy. That with a round leaf with thin fibrous, hanging roots should not be used, for its roots, which rise to the surface of the ground, destroy the road. The "peepul," the "margosa", "portia", the "buttress tree", the "sowrey" and the "punnay" tree are all handsome and hardy. Seedlings thrive better than cuttings and soon outgrow them becoming much finer trees, and taking deeper root are less liable to be blown down in storms.

Where roads slope, however good the soil may naturally be, heavy rains will wear gullies in them, unless their sides are protected by channels made to catch water, which otherwise would run on to and across or down the road, from which all water must be kept, except that which actually falls on it from above. Channels should be half a yard deep and should occasionally be cleared out. Roads on hard soil should be 10 yards wide, and the side channels 20 yards apart.

Sandy

Sandy Soil.

When roads cross extensive tracts of sandy soil, as they sometimes do, it is not easy to improve them, on account of the distance from which suitable materials must be brought. If the sand is not deep, it does not constitute a very serious impediment to the traffic of the country, and the roads are best in wet weather. In such cases they may be left in their natural state. When clay or stiff earth is found within a moderate distance, it may spread over the surface of the road to the depth of a few inches, trusting to its being worked into, and mixed with with the sand by passing carts, and cattle, which will form in time a moderately firm surface, if care is taken to smoth and level it after and to add more clay as requi-red. In Tanjore, where the soil is alluvium, tolerably passable roads have been made with a mixture of sand and clay, no hard materials being procurable.

If gravel, kunkur, limestone, or any other description of stone be procurable, a foundation of clay and sand should first be formed, over which a layer of gravel or broken stones may be spread.

A scanty supply of a brittle shingle, found a few fe[et] below the surface on the east coast, and apparently composed of sand connected by the lime of shells &c.a has been turned to useful account at Masulipatam and roads well suited to light work have there been made through sand at very moderate expense.

This has been effected by bringing earth or clay from tank[s] swamps &c.a to mix with the sand to a depth of six inches at [the] sides and nine in the middle. Where stones of the size of [a]

man

man's head were at hand, a row of them has been placed on each side of the space cleared for the road, and in other parts a border of turf, one sod above another. If the road is made at the begining of the monsoon, and the lower sods placed as deep as the bottom of the foundation, the turf will not require water. The foundation being laid, is well rammed with rammers weighing not less than 12 pounds each, & a coating of the shingle above mentioned, four to six inches thick is applied above it.

Roa

Raised Roads and Embankments.

Swamps and paddy fields are frequent obstacles, and across them it is generally necessary to raise embank-ments to prevent the road from being overflowed. They are of necessity expensive, for the roads must be raised in all such localities, generally requiring many bridges and passages for water; and they often entail much expense for the carriage of gravel or other hard material from a distance. These roads should be made as straight as possible, crossing the paddy fields or marshes in the most direct and shortest way, and in all such cases the road should not be raised higher than is indispensably necessary to guard it against being overflowed in the monsoon. It is a very common mistake to raise roads too high, of which the western road is an example, from the belief that the great height is necessary to prevent the road from being overflowed, whereas, it is plentiful drainage, and not great height, that is requi-red for that purpose. Every inch that a road is raised higher than absolutely necessary is a positive evil, first by increasing the cost of the original construction, and secondly by adding to the difficulty and expense of keeping

the

the road in repair, for the sides of high roads are always very liable to be damaged by rains. This axiom should be carefully attended to in the construction of raised roads.

By careful examination of the small irrigation channels, it will generally be found practicable to reduce their num=ber without materially interfering with cultivation, but in all cases care must be taken not only not to diminish the usual waterway, but to provide also for the free passage of the additional water which will be collected by the side channels or prevented by raised roads from flowing unimpeded in other directions over the country.

The safest plan of constructing raised roads, would be to form the bank, and leave it for at least one monsoon in order that it's effect upon the general drainage might be noticed and due allowance made. The bank would at the same time by the effect of the weather alone sink and consolidate, and thereby diminish the labour & cost of tamping, and it is of great importance that the embankment should be well consolidated, and the new earth well compressed, before the layer of metal, gravel or other hard material is applied to the surface. The irregularity of surface so common on raised roads, even after they have been metalled at a heavy expense, is to be attributed to the neglect of this simple and inex=pensive operation; while the more costly plan of making a foundation of blocks of stone, as sometimes followed in England, is unnecessary, and not suited for adoption in this country, where the weight of vehicles & their loads is comparatively trifling.

The high north road in the Vellore District raised in many parts three yards above the country, has

not

not been repaired for three or four years, and yet remains in very passable order, altho' the soil was of the worst description.

The sides of road banks should slope with a base of at least two for one. Turf will otherwise require watering through every hot season, or will be destroyed by the rain cutting channels in the slope.

A slope of 3 feet, if covered with a thin coat of gravel will be found in most soils to become clothed with a natural growth of grass and to sustain little injury from water, which will flow over such a slope with velocity insuffi-sufficient to do it injury.

If turfing is used it should be applied with much greater care than had hitherto been customary in this country. The first thing to attend to, is that it should be cut sufficiently thick so that the roots may not be extensively injured, and that a good quantity of the earth in which the turf grows may be taken up with each sod, 6 inches is the least thickness that should be given, and the turfs should have that throughout, and be cut square at their edges, & joined solidly and without intervals. The soil should be slightly watered before the turf is applied, but the turf itself should not be wet. It should be well beaten down as soon as applied, watered every week for three months of dry weather and watched always.

The excavation from which earth is taken to raise roads should be regular and parallel to them, with clear spaces of not less than 5 yards from each side. The ground oc-cupied by a raised road and the pits from which earth is taken for it, will vary from 30 to 40 yards in width, a mile of road at the latter rate occupying 11 acres

or nearly 14½ acres. The pits in order to facilitate measurement ought to be divided into intervals of 12 yards each by small cross banks to be afterwards removed, & their depth should be ½, 1, 1½ or 2 yards, the width varying according to the quantity of earth wanted for the bank.

The great desiderata for all roads are a certain hardness and evenness of surface.

Most European Writers on roads agree that they should be raised in the middle not more than one twentieth part of their width; and the same rule will apply to India.

If the soil is not naturally hard, gravel, sand, broken stones, or some other hard material must be sought and applied.

It is particularly necessary in forming estimates for roads, to ascertain where metal is procurable, the probable cost of excavating, preparing, carrying and spreading it.

When gravel or lime stone is found below the surface at a moderate depth pits or channels should be excavated all along the road, on one or both sides, according to the quantity of material required and to the arrangeme. for drainage.

If two channels be dug, the interval between them sh. be at least 20 yards clear.

The dimensions of channels to be dug will be regulated, first by the quantity of metal wanted, and secondly by the depth at which metal is found; for, if deep, it

will

will be found most economical to make the channels nar-
row, in order to diminish as much as possible the labour of
digging away the soil above the metal. It will be other-
wise advisable to keep the depth within one yard. If the
depth of the top soil and thickness of the metal render it
better to have gravel pits here and there along the road,
or wherever the metal has to be brought from the extre-
mities of a road, or from a distance, it will always be
advisable in the first instance to begin by making a
narrow road, on which the carts bringing the material
may move easily and which may afterwards be made
wider.

When the metal is taken from pits alongside the road,
the earth that covered it may either be thrown in again or
spread over the neighbouring ground on both sides, such
portion of it only as may be required to level the roadway
before applying the gravel, being disposed of in that way.
As the water passing down the road – channels will
much to the quantity that used to fall into the nullahs
which cross the road, and larger drains and bridges will
be required in proportion to the quantity of water, earth
should be taken from the lower side of a road rather than
from the higher side; in order that the side channel water
may flow into the nullahs below the bridges and drains,
and not have to pass through them.

The opinion of Officers employed on road work, with reference
to the thickness and quantity of metal required vary much,
as might be expected, because there is a great difference in

soils

soils known by the same name and appellation, as well as in the qualities of metal. Experience must be resorted to in every locality, in order to ascertain how far perfection of work and economy of material are compatible; and it is wasteful at once to decide on laying a thickness of 9 inches or 1 foot of metal on a road, when it is certain that in some soils of very bad description, as for instance on the raised portions of the high road in the Nellore District, 3 inches thickness of gravel have sufficed to form an even and durable surface. It will also be found on examination that in many roads on which a greater thickness of gravel has been laid, that material becomes compacted into a solid mass only to a depth of 2 inches or so under the surface below which it remains loose. Where the interest of money and the returns of capital expended are high (as they are in India), the making works costly in order that they may prove lasting and need little repairs, is not always good economy. It is far more desirable to make the whole of the road passable at moderate cost and to perfect it by gradual improvements, than in successive portions to make it perfect in the course of a longer period, during which the finished part is productive of little or no increased convenience. At the same time, whatever repairs or improvements are made should be permanent in character, as it were steps leading to the formation of a work of first rate quality.

The metal should be heaped up at intervals along the road, the heaps counted, and here and there their

contents measured. It desirable to allow the heaps to remain one monsoon before they are spread, in order that the loose soil may be washed off and the better gravel only applied, but this must depend upon the nature of the material & the relative value of accelerating the work, compared with its somewhat better execution.

The metal should be evenly spread on the surface of the road in the early and late showers, and as ruts are formed in it by the passing of carts, &c.a they should be repeatedly filled up from heaps reserved for that particular purpose. Ramping and rolling may be used, and the surface might be well consolidated and made level by drawing a heavy roller once or twice over it when it is not too moist.

The thickness of the first coat of metal should be 2½ inches, allowing 75 parahs to 100 square yards, or 1 cubic yard to 16 square yards.

If after the first coating of gravel, a second is found partially or everywhere required, the surface of the first coating may be roughened, a second layer of metal may be spread on it, and the roller passed over it until all is well consolidated.

Cotton Soil.

The cotton soil (regur) is found occupying extensive plains, often at great distance from hills or ground from whence

whence good metal or material for the surface of roads may be procured.

In many parts its depth does not exceed four feet, below which calcareous stone (Kunkur) or gravel (moorsa=ham) is met with, but in other localities gravel or lime stone has been sought in vain at the depth of thirty feet below the surface, and in such cases the excavation of pits for the purpose of finding gravel becomes too expensive to be recommended.

The cotton soil in dry weather is everywhere traversed by cattle and vehicles with little difficulty, but when rain has fallen, it becomes so soft and miry, that it is utterly impassable to the latter & a most formidable obstacle to all travelling.

The remedy consists in giving a hard surface of good kunkur or broken stones, and the extent to which this can be done will depend upon the facility or otherwise of procuring suitable material. It is not considered necessary that a road over cotton soil should be raised above the general level, except to the extent caused by the gravelling only; unless it be subject not only to the flowing over it of a thin sheet of water during or immediately after rain, but to be under water, whether stagnant or flowing for some days together. In this latter case, it would be in the predicament of a road across a swamp, and must be treated accordingly; but otherwise, the passage of

water over a metalled surface is not likely to do any material injury, and the obstruction to drainage, often by a useless embankment, leads to the roads being bodily carried away and should by all means be avoided.

It has been found that a layer of gravel, kunkur or broken stones from 6 to 12 inches deep spread over the natural surface of cotton ground, forms a good road. About two or three inches deep should first be spread, and more gravel added as it consoli-dates till the required thickness is attained, the sides being sloped, and the side and cross drainage being formed to carry off the water.

Drainage.

When roads are not much raised and pass over a clay or black cotton soil or one having a sub-soil near the surface impervious to water, much benefit will be derived from having covered drains or conduits on each side of the road, so as to preserve a dry bed for the road to rest on.

The metal covering of a road does not effect this object unaided by the assistance of drains.

Although no rain may pass through the arch formed by the broken stones when pressed by weight into a solid body, yet it is evident that if the soil on both sides of a road is saturated with water will find its way under the surface of the road, until the soil in which

the road rests becomes equally filled with water. 71

The only means therefore to ensure a dry bed for the road, is to cut off the supply of moisture from the soil on the sides of the road.

This may be effectually done by drains constructed with various kinds of material most easily to be procured in the neighbourhood.

The quantity of water which enters these drains is generally so trifling, that a small curved tile* is sufficient.

The interior capacity of the tile, as well as of a drain made with bricks or stone without mortar, should depend on the quantity of water which runs and the distance the drain has to conduct the water to its exit. Thus

Stones, slates, or bricks can be used where tiles are not to be procured; when the drain is made of these materials it frequently happens that it is necessary to excavate a broader trench which increases the expense. Brick on edge with a flat tile to cover the intermediate space above the bricks, is in general sufficiently thick, and has so good a footing caused by this circumstance, that it may be unnecessary to use a flat to stand on, slate stones placed together in

in a triangular form and properly steadied make a good conductor, and they as well as all materials are more secure against accident from the effects of a current in the conduit, by having a flat tile or brick to rest on. Building a drain with rubble stone can be done very rapidly, but care must be taken to make the stones firm in their walls with the beds having a slight inclination to the hollow of the drain. Mortar must never be used, as closing the interstices of a rubble conduct with cement effec-tually prevents its acting as an under drain.

A 3 feet drain above the conduit, if convenient should be filled up with gravel, small or broken stones loosely placed above the conduit, coarse sand or earth taken out of the drain, pulverized and returned. The last foot of the on the surface might be soil.

The different materials as follows, from experience have been found to be the best, though all will answer the purpose.

Gravel - - - - - 1 is the best
Small Stones - - - - 2 next
Broken stones - - - - 3 and so on &ca
Coarse sand - - - - 4

A great object in excavating the earth from a drain is to remove the least quantity of soil possible. A Europe spa will make a narrow drain than the Native mamooty Of course the people must work with the tools of the coun unless in wet weather, when a long handled shovel ma shoes fashion, as known in England, might answer. The greatest care must be taken to keep the mouths of the drains free from sand, and the ground in front clear for the water to run off.

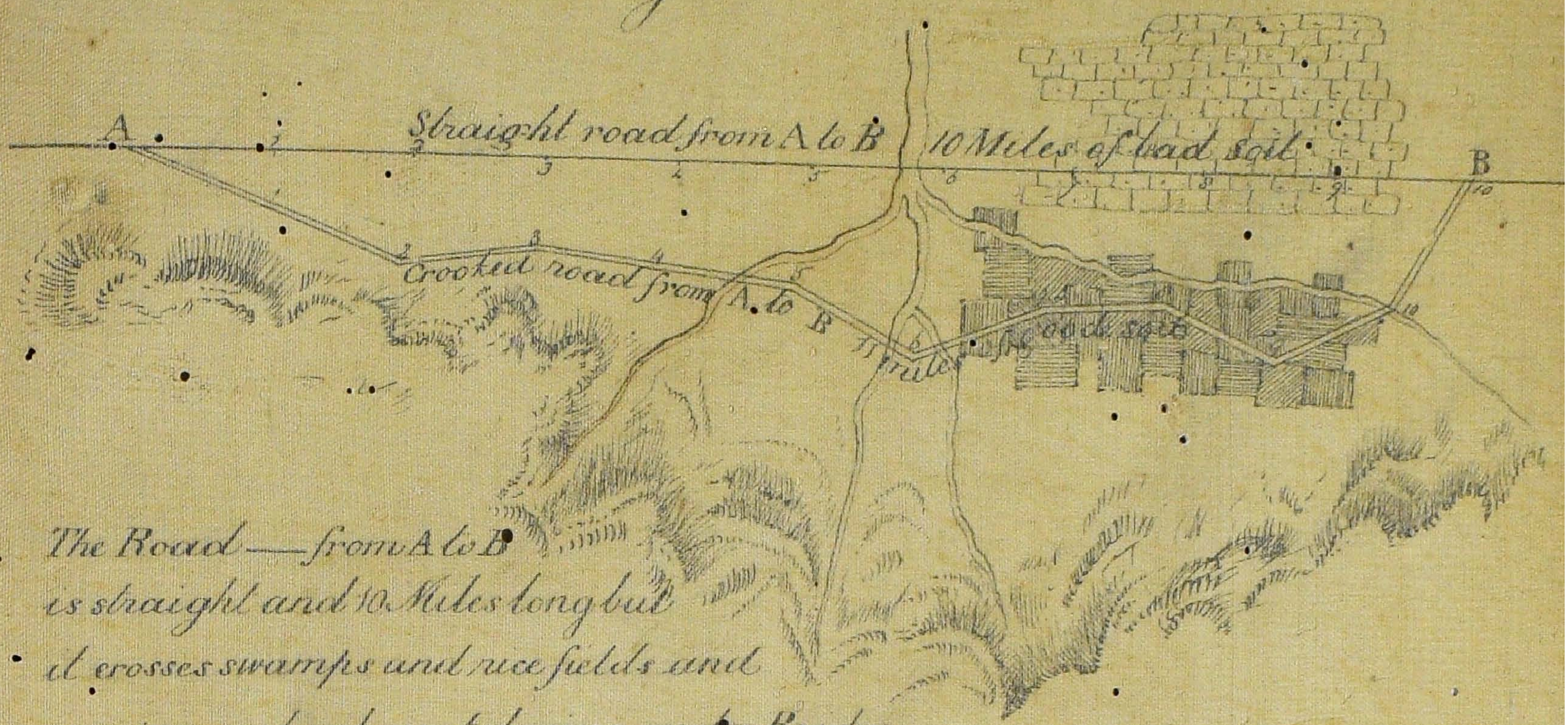
(Signed) D. Sim Lt. Col.

20th August 1845. Chief Engineer

PLATE I.

Fig A.

Shewing how little may be gained by considerable straightening of a Road

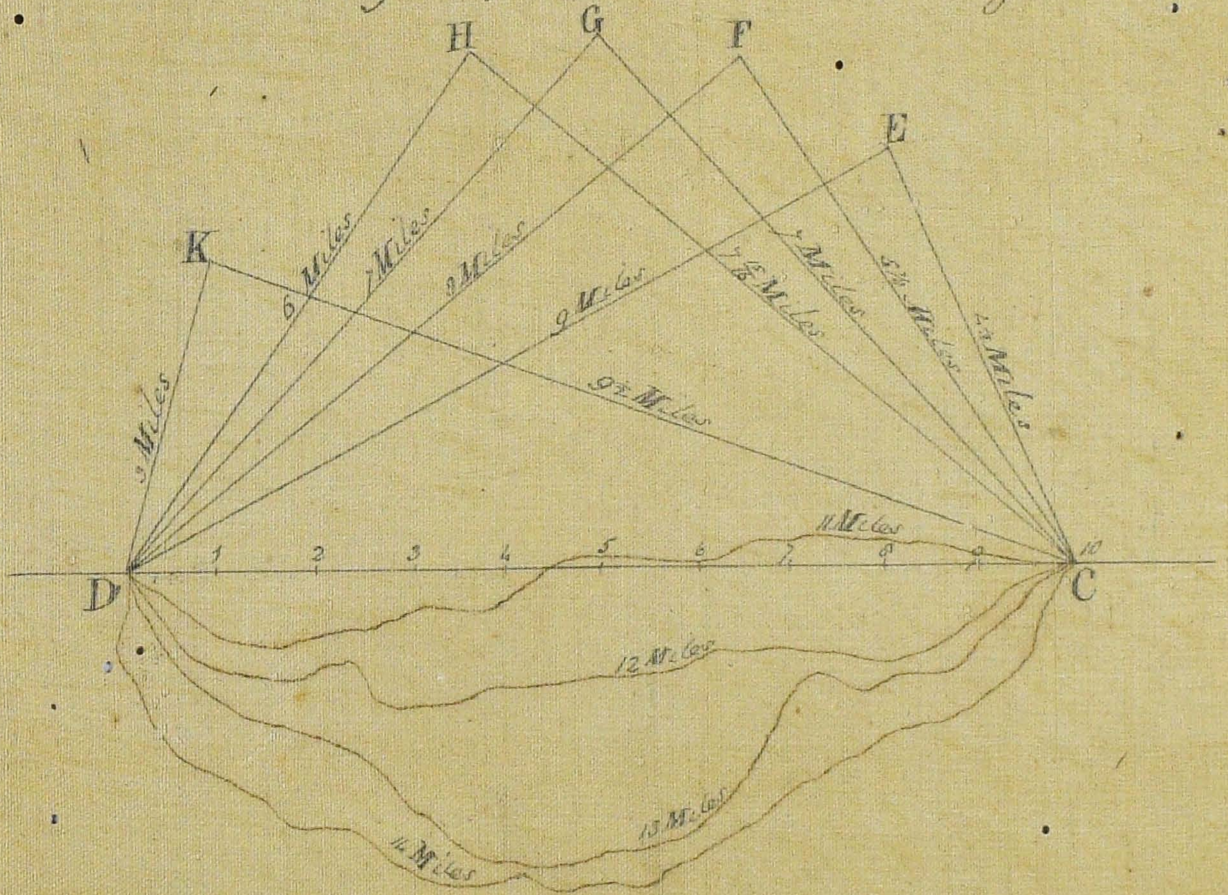


The Road — from A to B is straight and 10 Miles long but it crosses swamps and rice fields and requires embankment, drains and a Bridge.

The Road = from A to B is crooked and 11 Miles long and passes over good soil and crosses the watercourses before they unite and therefore needs no Bridge.

Fig B

Shews how much the distance between C and D is increased according to the degree of deviation from a straight line



CD *direct 10 Miles*

CED	13½
CFD	13 7/10
CGD	12
CHD	13 5/8
CKD	12½

PLATE II.

Drawings of a Dam to retain the sand brought down and to raise the Bed of a Nullah to the Level of the Road

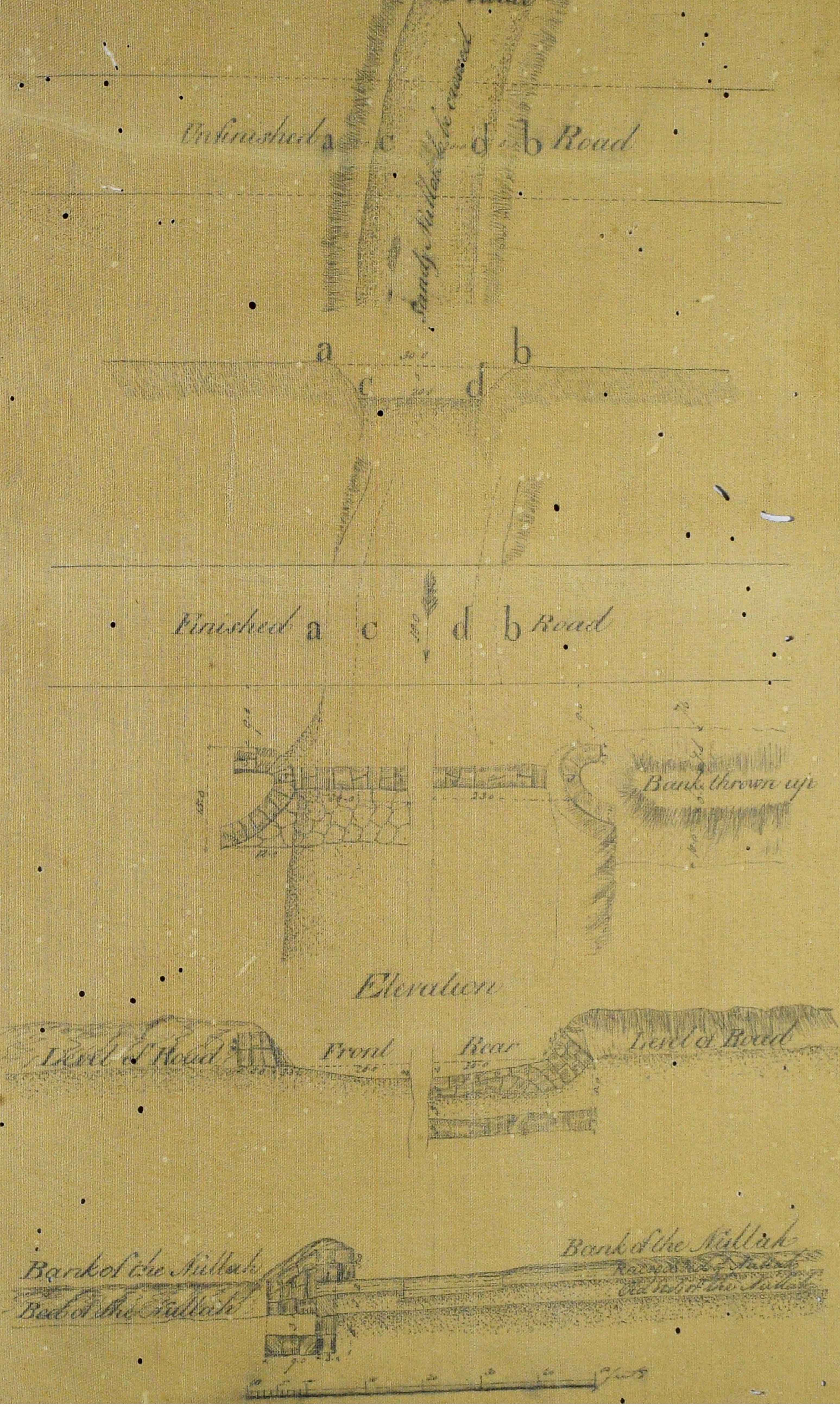


PLATE III.

Method of forming slopes to facilitate the ascent of high steep Banks.

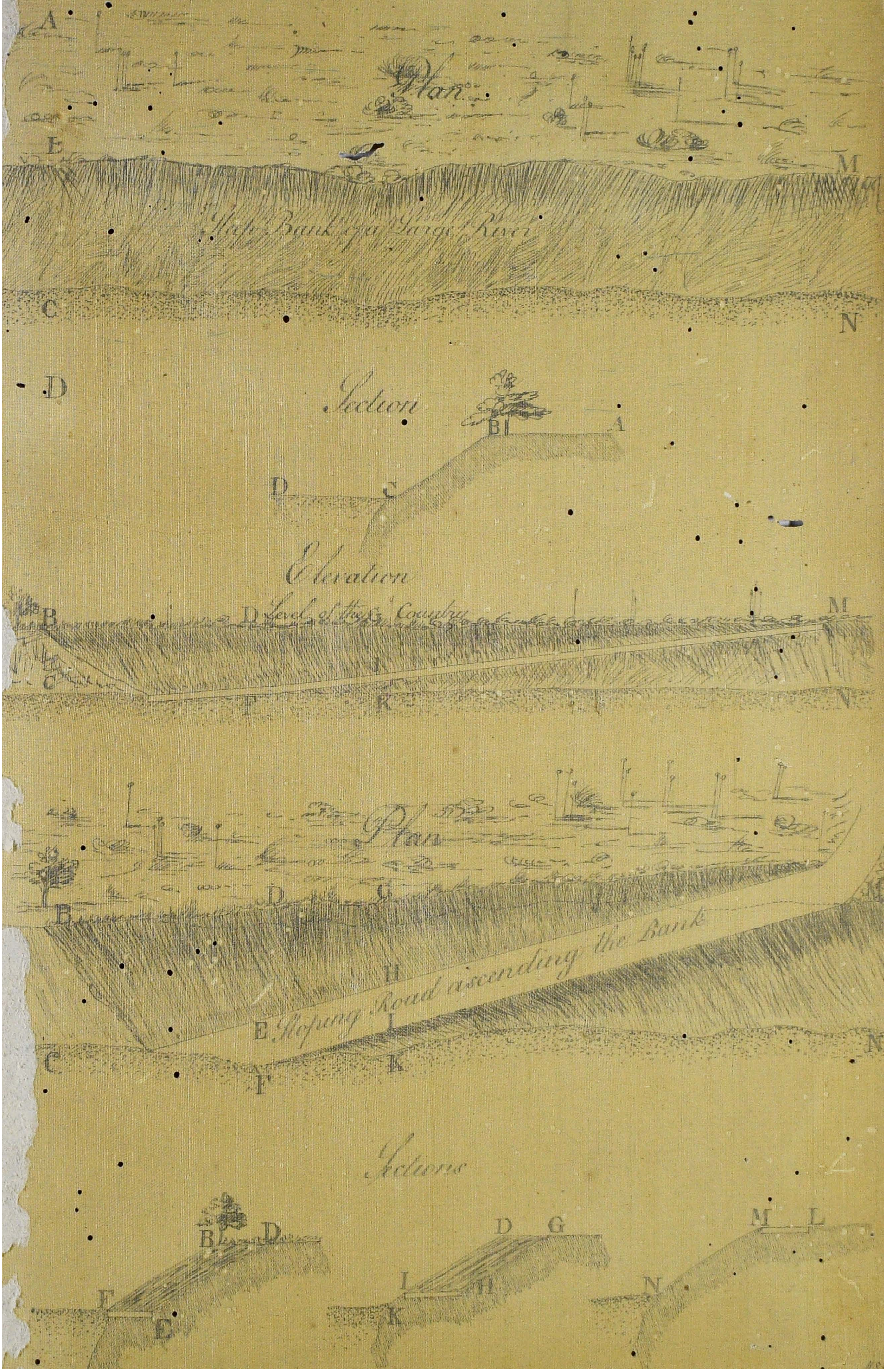
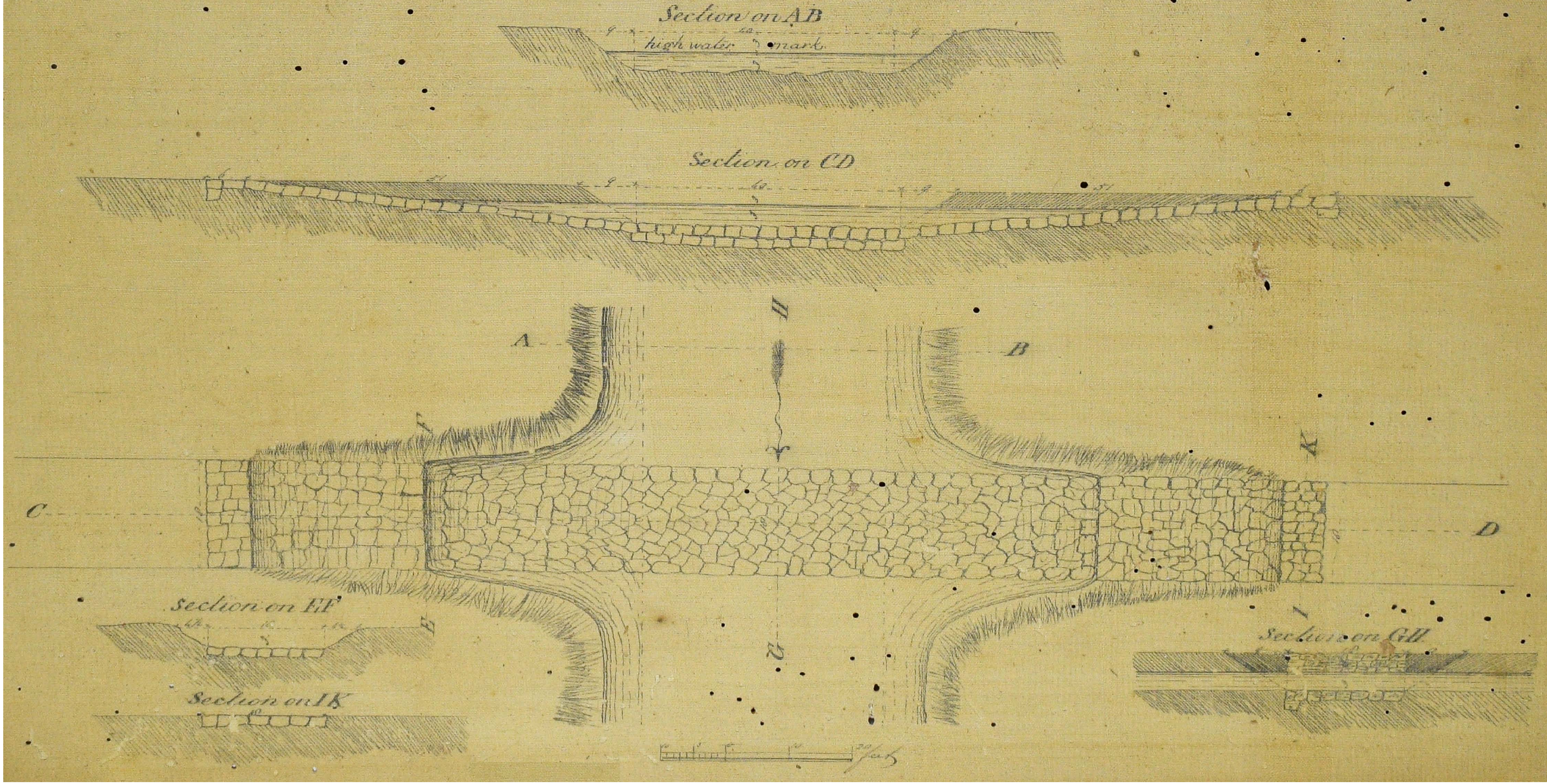


PLATE IV.

Drawings of an Irish Bridge, or inverted arch drain



83

Immerally Vunnarpetta
14th October 1845
Recd 18th [illegible]

R

From
Captain W. H. Horsley
Civil Engineer 8th Divn
To J. L. Blackburne Esqr
Principal Collector of
Madura

Sir,

Let. 145.

I have the honor to acknowledge the receipt of your letter No. 769 with a rough, original plan and translate of an address from the Thenkurrai Tassildar of the 30th Ultimo on the subject of turning the perennial stream, termed Harorugul Aur, from the Mountains of Travancore into the Durigul Valley, at a roughly estimated expence of Rupees 44,812, and to state, in reply to the 2nd para of the same, that I will make a point of examining the locality on my next visit to the Thenkurrai Talook, probably about the end of December 1845, or beginning of January 1846, in the mean time it is desirable that the path leading to it, as well as the proposed line for the Channel should be cleared of jungle and grass. Also, that occasional observations should be

made

made of the depth of water in the river at the site of the former Anicut and of the greatest height to which it may attain during the present N. E. Monsoon. And further that the land, which is to be brought under cultivation, or benefitted by the additional supply of water from the Haroongal-Ain, should be carefully examined by the Tasildar, and its extent and the probable increase in Revenue duly ascertained. The direction which the water should take after it reaches the plain should also be determined as far as practicable.

Assistant Surveyor Maughan will be in the Thenkaray Talook shortly, and will be directed to visit the place and report on the feasibility of the project and its probable advantage to cultivation, his report shall be forwarded for your information as soon as received.

I have the honor to be
Sir,
Your most Obt Servant
J. H. Horsley Captn
Civil Engineer 8th Divn

Tinnevelly District
Trivanapettah
14th October 1846
Recd 18th JB

Received 29th Novr 1845

R 65

Extract from a letter from the Secretary to the Board of Revenue in the Department of Public Works to the Chief Secretary to Government under date the 16th October 1845 No. 592.

Madura

Letter from the Cr. of the Dt. dated 7 ... 1845.

15 An Estimate amounting to Rupees 1062-1-3 for constructing a Chuttrum between Oodampitty and Nellacotay on the road between Streevillyputtoor in Tinnevelly to Palghat by Pulney, and an Estimate amounting to Rupees 92-2-6 for restoring an old well and watering place in the vicinity of the proposed building

Dated 13 May 1845.

16 The necessity for these works is stated at length by the Principal Collector and being supported by the Civil Engineer does not require to be further urged by the Board. The Principal Collector has it will be observed erected two Chuttrums Mundapums at Oosalumpatty and Shedapatty on the same road, and Cullamuddum is the place selected

selected for that for which sanction is now soli-
cited being at a point where shelter is much
to be desired.

37. The proposed establishment for
the maintenance of the chuttrum may be ap-
plied for in the regular form should the work
be sanctioned.

(Signed) J. H. Bell
Secy. Bd. of Revue D. P. W.

No. 250.

Extract from the Minutes of Consultation
Under date the 8th November 1845

The Most Noble the Governor
in Council sanctions the Estimates recommen-
-ded in the foregoing letter amounting together
to Rupees (1154-3-9) One thousand one hun-
dred and fifty four annas three and pies
nine.

(A true Extract)
(Signed) J. F. Thomas
Chief Secretary

To
The Presd. & Members
of the Bd. of Revue D. P. W.

No.